

*Sub 1*  
(Once amended) A method of replicating content data stored on a central content server to at least one local content server, comprising the steps of:

*B<sup>1</sup>*  
determining unused bandwidth on a common link of an access data network carrying subscriber traffic and over which central content server and the at least one local content server communicate; and

transmitting content data stored on the central content server to the at least one local content server substantially on the determined unused bandwidth.

2. (Once amended) The method of claim 1, wherein said at least one local content server comprises a server located in a vertical services domain proximate to at least one end user terminal.

5. (Once amended) The method of claim 1, wherein:  
the local content server is located in a central office that provides Digital Subscriber Line (DSL) service to the at least one end user terminal; and  
the central content server is located in a hub site.

*B<sup>2</sup>*  
1. 6. (Once amended) The method of claim 1, comprising the further steps of:

storing the content data transmitted to the at least one local content server on the at least one local content server; and

transmitting the content data stored on the at least one local content server to at least one end user terminal proximate to the at least one local content server.

9. (Once amended) The method of claim 6, wherein the step of transmitting the content data stored on the at least one local content server to the at least one end user terminal proximate to the at least one local content server comprises the steps of:

provisioning a logical communication circuit extending from the at least one end user terminal through the network to a communication access node coupled to a first network domain, at least a portion of the logical communication circuit extending through the common link, wherein the provisioning comprises defining the logical communication circuit in terms of a layer-2 protocol defining switched connectivity through the network;

at the data switch, examining communicated information in transmissions from the customer premises, for a protocol encapsulated within said layer-2 protocol, to distinguish transmission types;

forwarding each detected transmission of a first transmission type from the data switch to the communication access node over the logical communication circuit defined in terms of the layer-2 protocol; and

forwarding each detected transmission of a second type, different from the first transmission type, to a second network domain logically separate from the first network domain, wherein the at least one local content server is coupled to the second network domain to receive at least one transmission of a second type for control of the step of transmitting the content data stored on the at least one local content server to at least one end user terminal proximate to the at least one local content server.

10. (Once amended) A method as in claim 9, further comprising the steps of:

receiving first downstream transmissions intended for the at least one end user terminal at the data switch, over the logical communication circuit from the first network domain;

receiving second downstream transmissions intended for the at least one end user terminal from the second network domain at the data switch, content data from the at least one local content server; and

inserting the second downstream transmissions into the logical communication circuit, to combine the first and second downstream transmissions for communication over the logical communication circuit from the data switch to the at least one end user terminal.

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12. (Once amended) The method of claim 1, wherein a part of the bandwidth of the common link is reserved for transmitting the content data stored on the central content server to the at least one local content server to prevent the loss of a session between the central content server and the at least one local content server.

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#### REMARKS

Reconsideration and allowance are respectfully requested. The Office Action allowed claims 18-24, rejected claims 1-6, 9, 12-17, 25, 31-40, 42, 43 and 45, and objected to claims 7, 8, 10, 11, 26-30, 41 and 44. Applicants have amended claims 1-2, 5-6, 9-10 and 12 and cancelled claim 4 without prejudice. Consequently, claims 1-3 and 5-45 are pending upon entry of this Amendment. No new matter has been added.

§ 102 rejection

Claims 1-2, 4, 6, and 12-16 were rejected under 35 U.S.C. § 102(b) in the parent case as being anticipated by U.S. Patent No. 6,078,582 to Curry et al. ("Curry"). Applicants respectfully traverse this rejection.

Applicants have amended independent claim 1 to clarify that the inventive method transmits content data stored on a central content server to at least one local content server. The Office Action asserted that Curry teaches "transmitting content data stored on the [central] content server to at least one [local] content server substantially on the determined unused bandwidth (see Figure 10B, col. 13, lines 40-52)." Applicants respectfully disagree.

Curry does not mention anything about transmitting content from a central server to any of the ITSs. Instead, Curry teaches monitoring the bandwidth on a virtual path between two ITSs, not between the ITS and the local central office, or any other central server, as implied by the Office Action (col. 13, lines 10-14 and lines 38-52). Further, Curry does not even mention monitoring traffic between a central and a local server. As shown in Figure 6, all virtual paths between ITSs travel through one or more routers and do not connect any ITSs to a central server. Moreover, Curry assumes that the virtual path between ITSs is the only path requiring bandwidth monitoring (col. 13, lines 27-52).

Moreover, Curry does not disclose transmitting content data over unused bandwidth like the claimed invention. Curry only teaches varying the data rate of existing traffic based on available bandwidth (col. 13, lines 41-50) but does not mention anything about seizing opportunities for utilizing unused bandwidth in

subscriber traffic to transmit content data other than the subscriber traffic (e.g., data stored on the central server).

By focusing exclusively on the bandwidth used on a virtual path between two ITSS and not between the ITS and any central server, Curry does not disclose or suggest determining unused bandwidth on a link between the central content server and the local content server, Further, because Curry only addresses filling unused bandwidth by varying the data rate for existing subscriber traffic and not by transmitting content data other than the existing traffic over the spare bandwidth, Curry fails to disclose transmitting content data substantially on the determined unused bandwidth like the claimed invention. Withdrawal of the rejection is therefore respectfully requested.

#### § 103 rejections

Claims 3, 5 and 17 under 35 U.S.C. § 103(a) in the parent case as being unpatentable over U.S. Patent No. 5,790,548 to Sistanizadeh et al. ("Sistanizadeh") in view of Curry. Applicants respectfully traverse this rejection.

Claims 3, 5, and 7 depend directly or indirectly on independent claim 1 and therefore the Office Action fails to establish a prima facie case of obviousness for the reasons explained above. The Office Action asserted that Sistanizadeh discloses a central content server at a hub site (col. 16, lines 8-16). However, the Office Action overlooks the fact that Sistanizadeh assumes that only simple, limited messages following Simple Network Management Protocol (SNMP) can be transmitted between the client and the server (col. 15, lines 1-16). This

explicit limitation teaches away from transmitting content data on unused bandwidth because the restrictions in SNMP limit the amount and type of transmitted information.

At best, combining Curry with Sistanizadeh would teach monitoring the bandwidth on paths between clients (not between the client and the server) while ignoring the bandwidth on the client/server path and restricting the traffic along this path. This clearly fails to suggest the claimed invention, which monitors bandwidth between a central and at least one local content server and transmits content data over unused bandwidth. The Office Action therefore fails to establish a prima facie case of obviousness, and withdrawal of the rejection is respectfully requested.

Claims 9, 25, 31-40, 42-43 and 45 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Curry in view of Sistanizadeh and further in view of U.S. Patent No. 6,118,785 to Araujo ("Araujo"). Applicants respectfully traverse this rejection. Claim 9 depends on claim 1 and is therefore patentable for the reasons explained above. With respect to independent claims 25 and 39, adding Araujo to the Curry/Sistanizadeh combination still fails to suggest the claimed invention because Araujo focuses only on a point-to-point protocol.

None of the references, either alone or in combination, suggests the claimed central and local content servers, nor does the combination suggest transmitting content data between the servers over otherwise available bandwidth. As explained above, Curry focuses only on monitoring virtual paths between ITSs (not between a central and a local content server), and Sistanizadeh focuses on restricting the data between a

client and a server (not on transmitting content data). Incorporating Araujo would simply add a point-to-point protocol without addressing the deficiencies in Curry and Sistanizadeh. The Office Action therefore fails to establish a prima facie case of obviousness with respect to 9, 25, 31-40, 42-43 and 45, and withdrawal of the rejection is respectfully requested.


Applicants thank the Examiner for allowing claims 18-24 and indicating that claims 7, 8, 10, 11, 26-30, 41 and 44 contain allowable subject matter. Applicants note, however, that the cited art fails to disclose or suggest any of the pending claims. Allowance is therefore respectfully requested.

All objections and rejections having been addressed, it is respectfully submitted that the present application is in condition for allowance, and a Notice to that effect is earnestly solicited.

Any fees associated with the filing of this paper should be identified in any accompanying transmittal. However, if any additional fees are required, they may be charged to Deposit Account 18-0013 in the name of Rader, Fishman & Grauer PLLC.

Respectfully submitted,

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CERTIFICATE OF MAILING

I hereby certify that the enclosed Amendment is being deposited with the United States Postal Service as first class mail, postage prepaid, in an envelope addressed to the Commissioner for Patents, Washington, D.C. 20231 on this 9<sup>th</sup> day of JANUARY, 2002.

Christy J. Lee

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